

The distribution and variability of ozone in the UT/LS during CRYSTAL-FACE



E. Richard*, E. Ray*, K. Rosenlof, and T. Thompson

NOAA Aeronomy Laboratory

*also CIRES, University of Colorado, Boulder

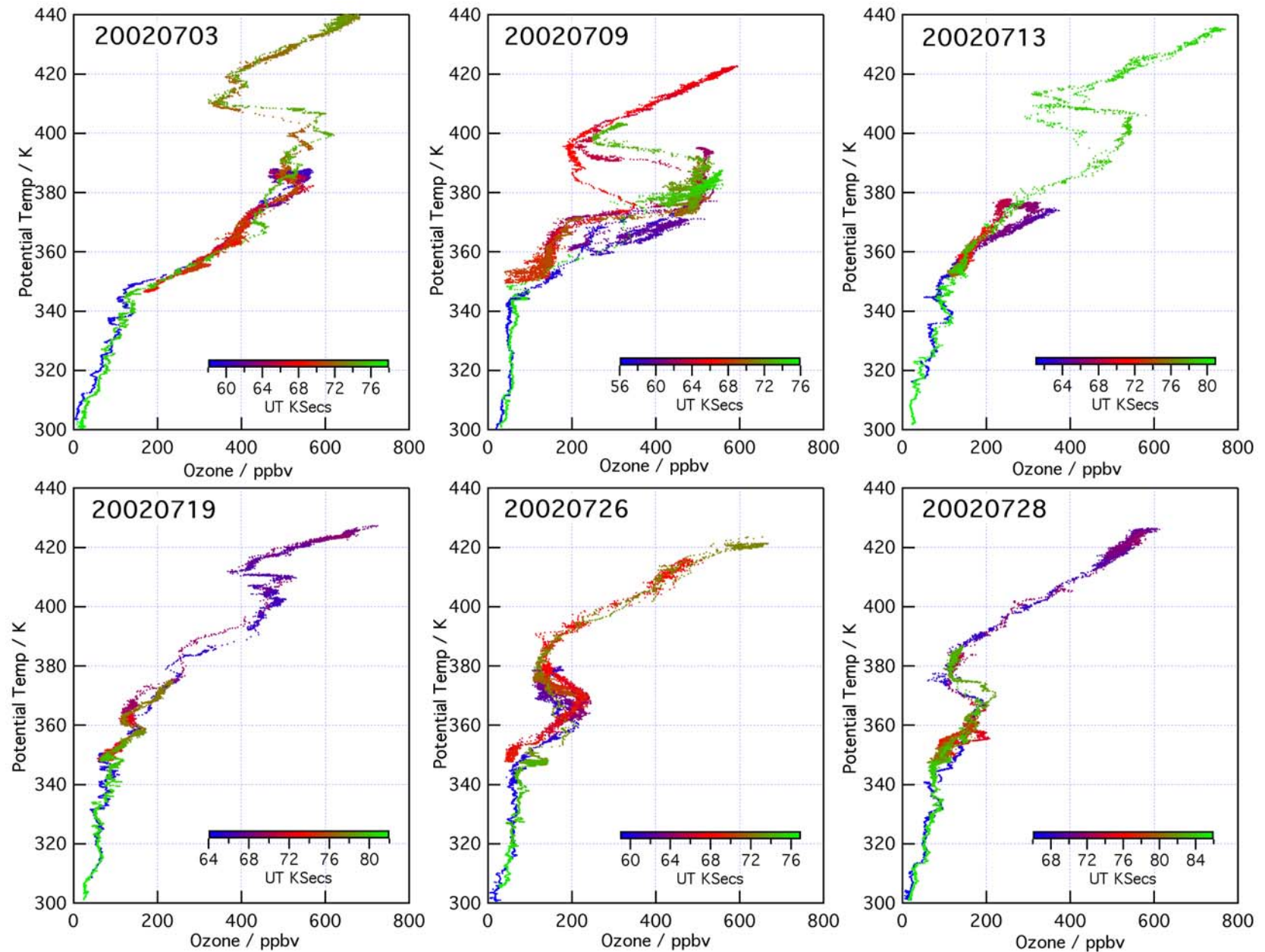
M. Loewenstein, H.-J. Jost and J. Lopez

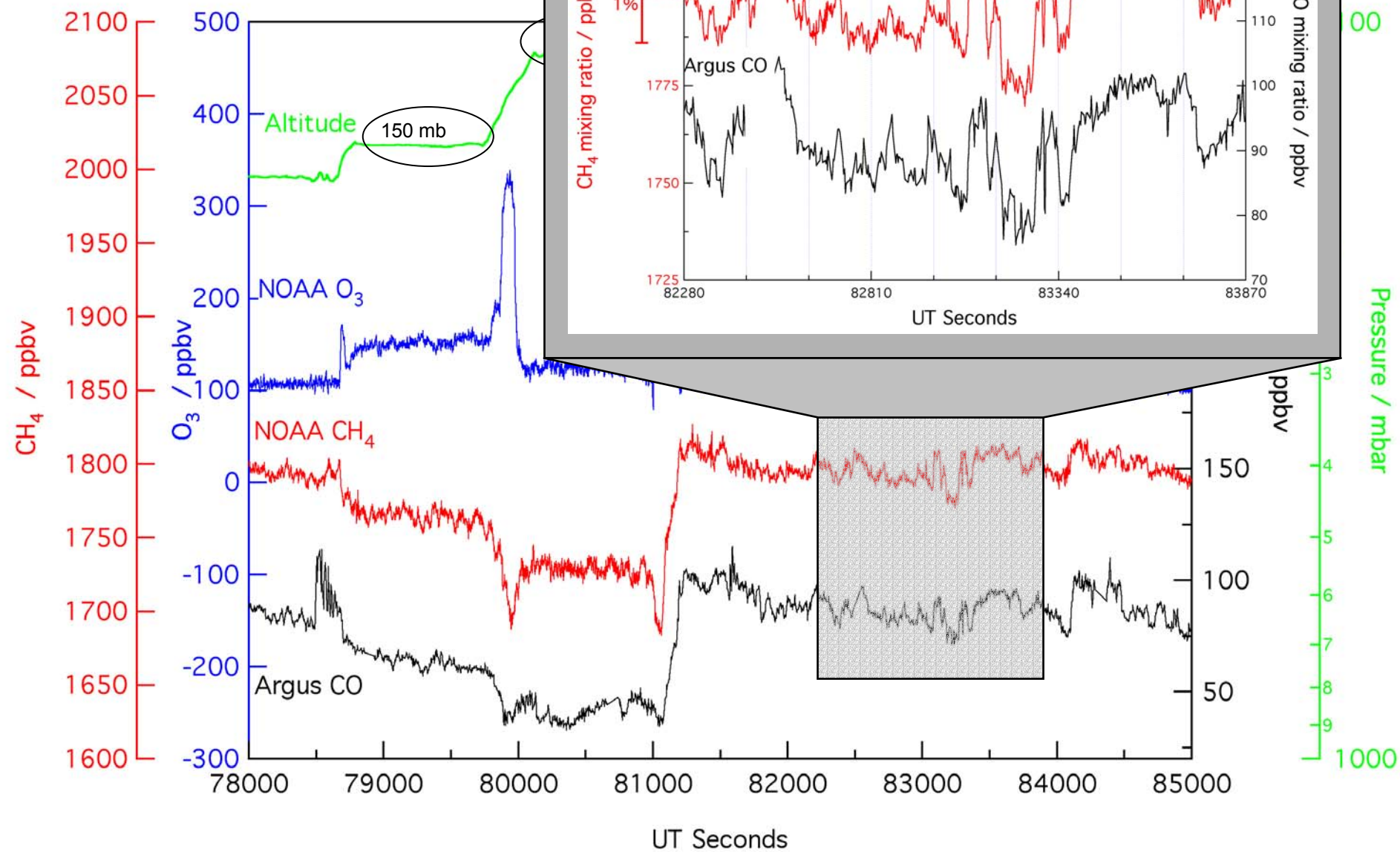
NASA Ames

B. Ridley, A. Weinheimer, D. Knapp, and D. Montzka

NCAR ACD

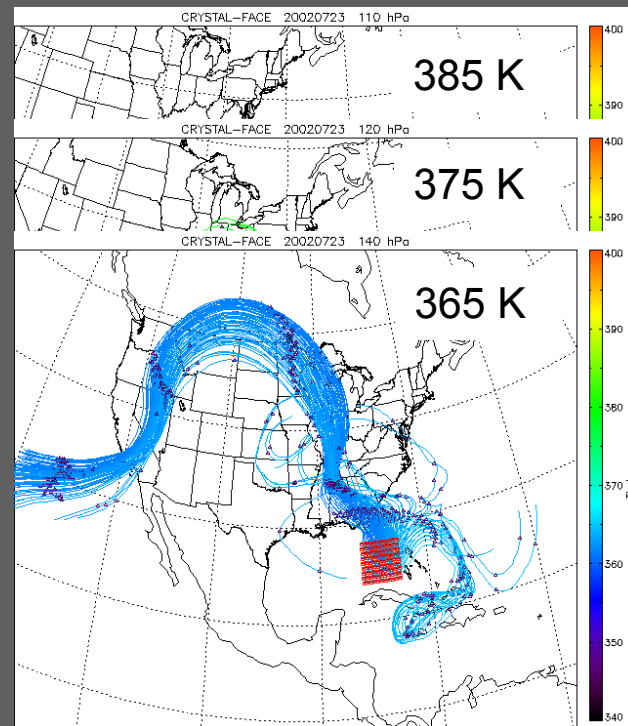
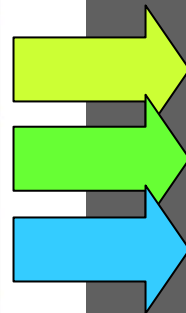
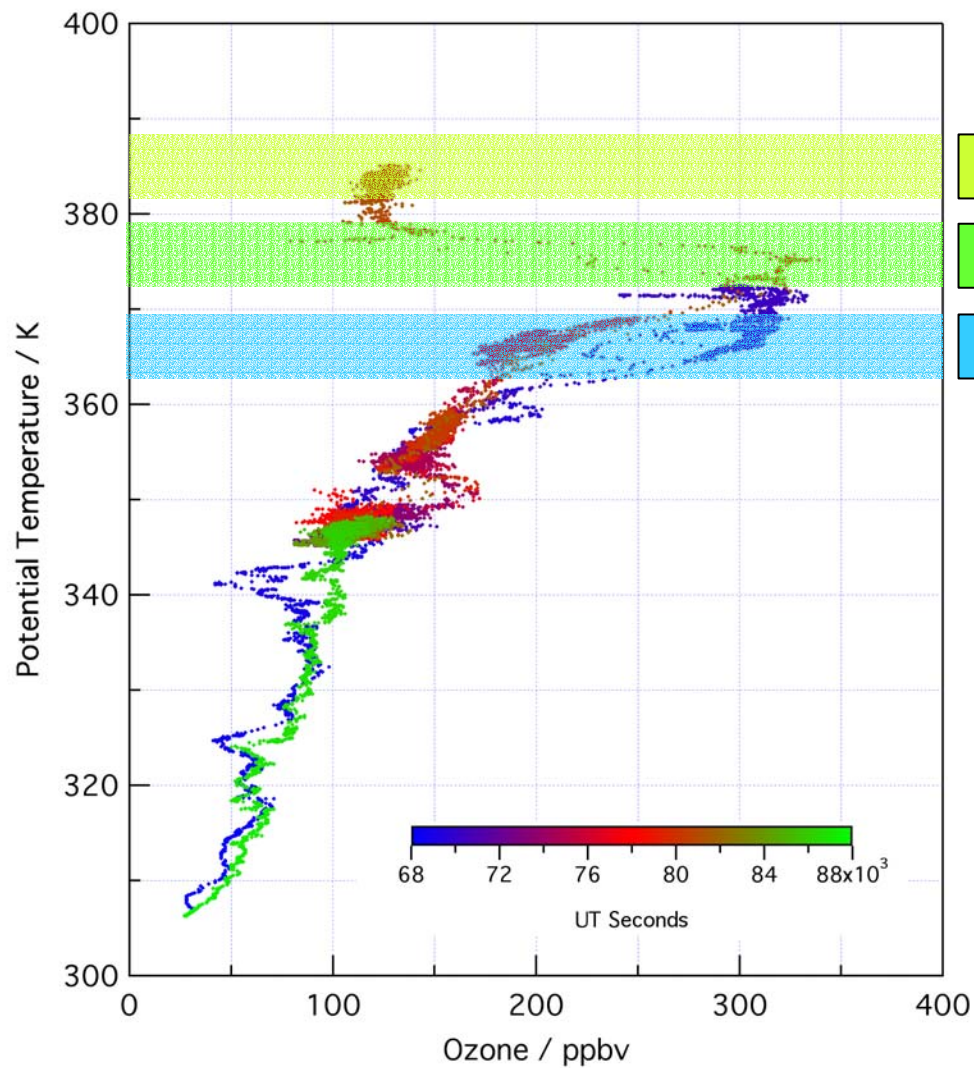
Ozone Vertical Profiles during CRYSTAL-FACE



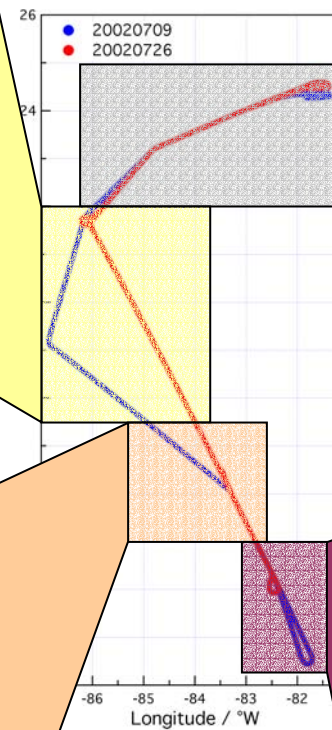
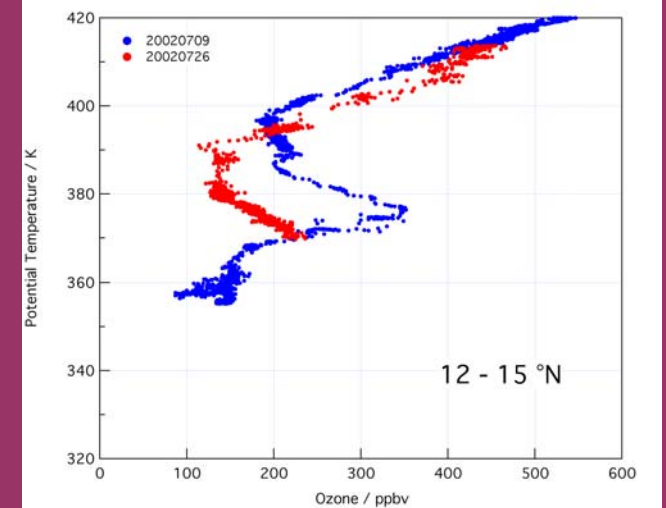
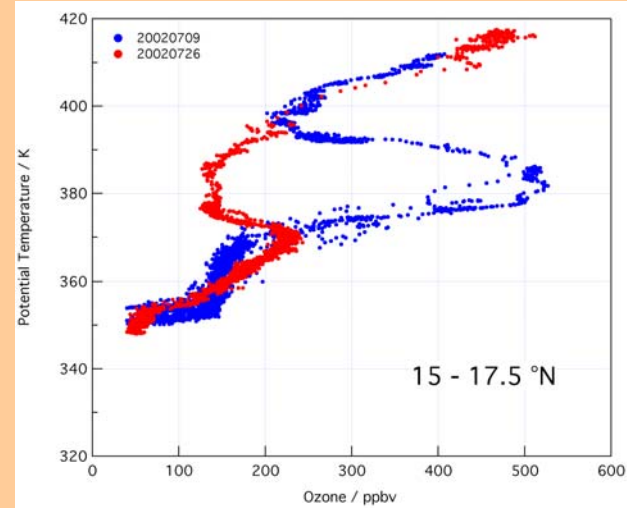
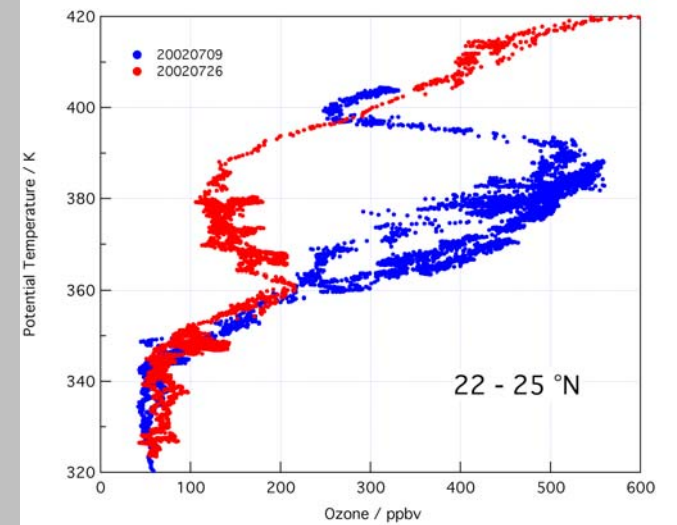
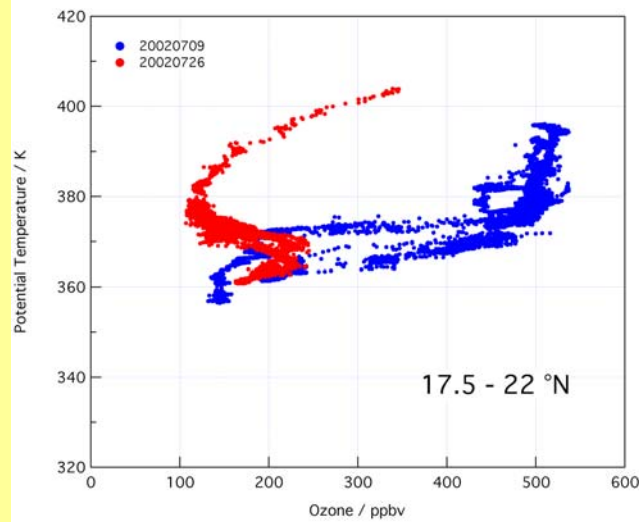


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5-day Back Trajectory

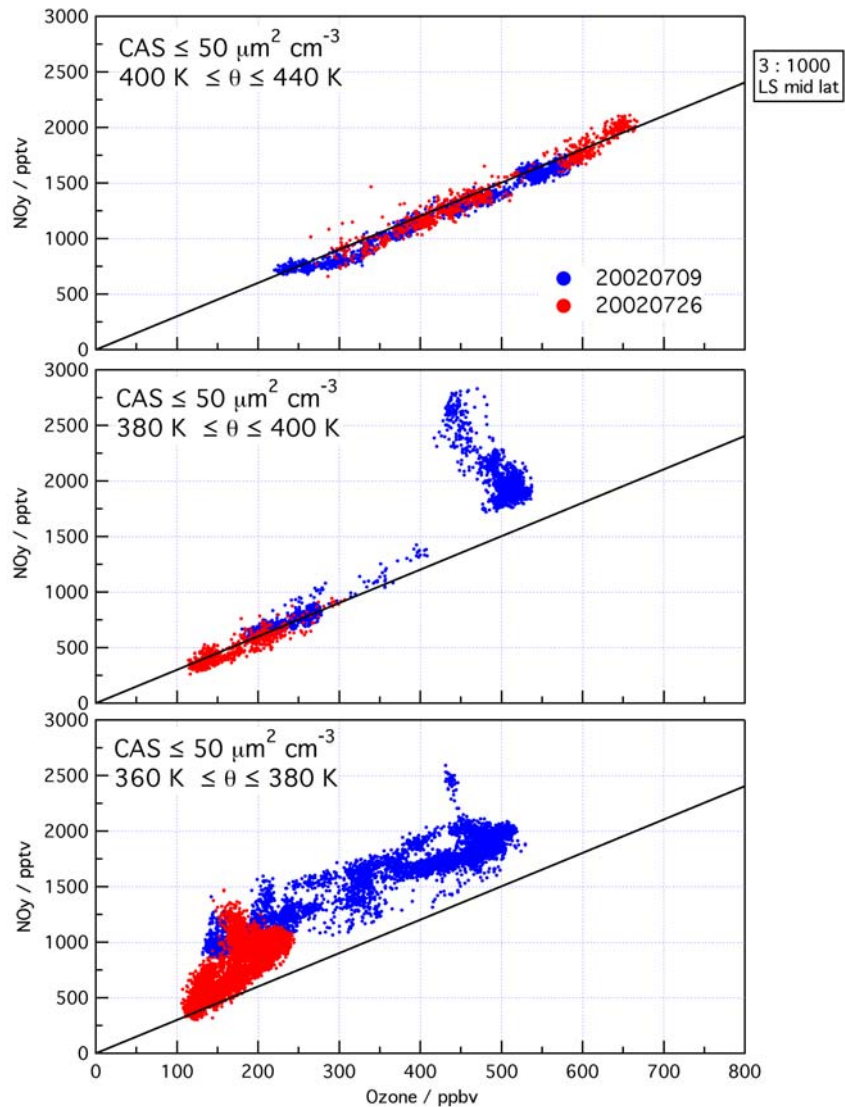


Southern Flights

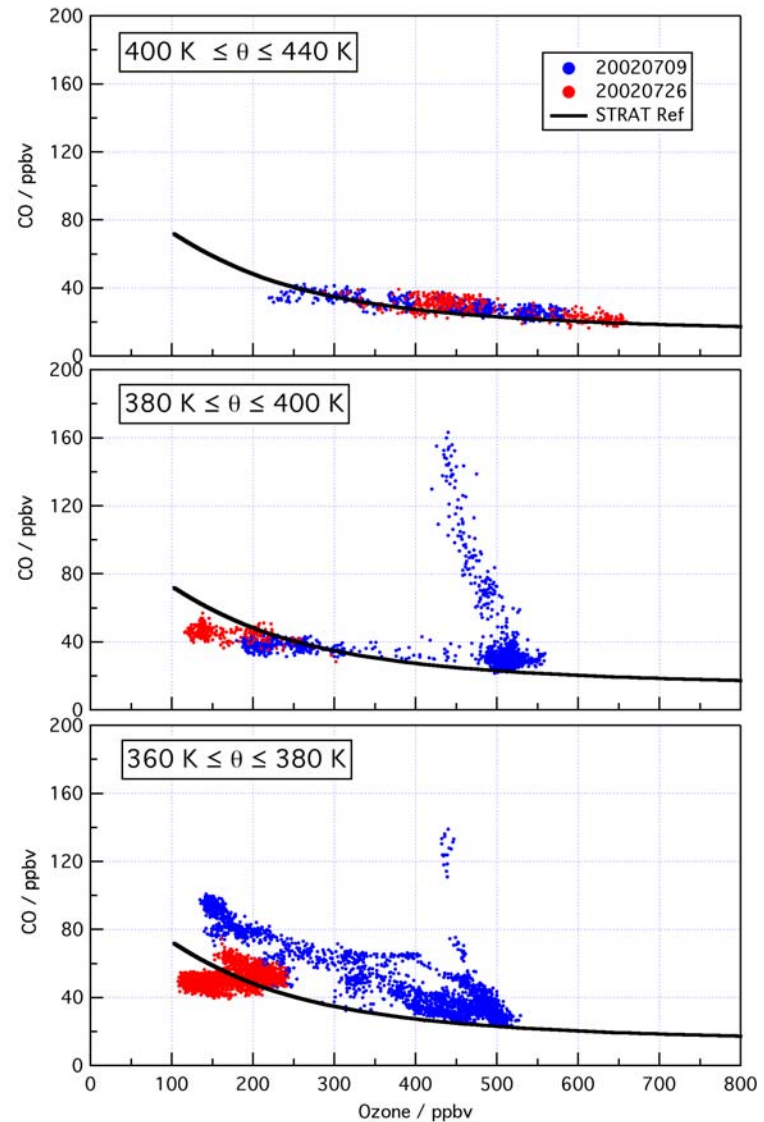


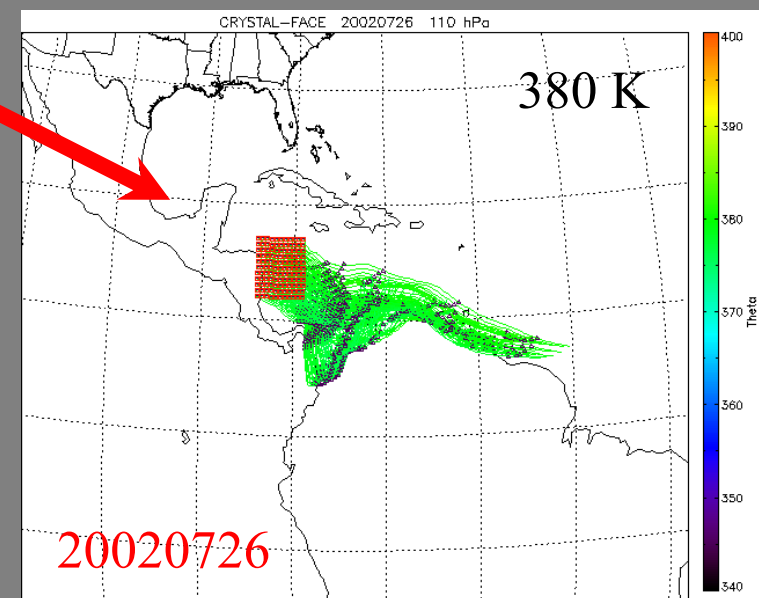
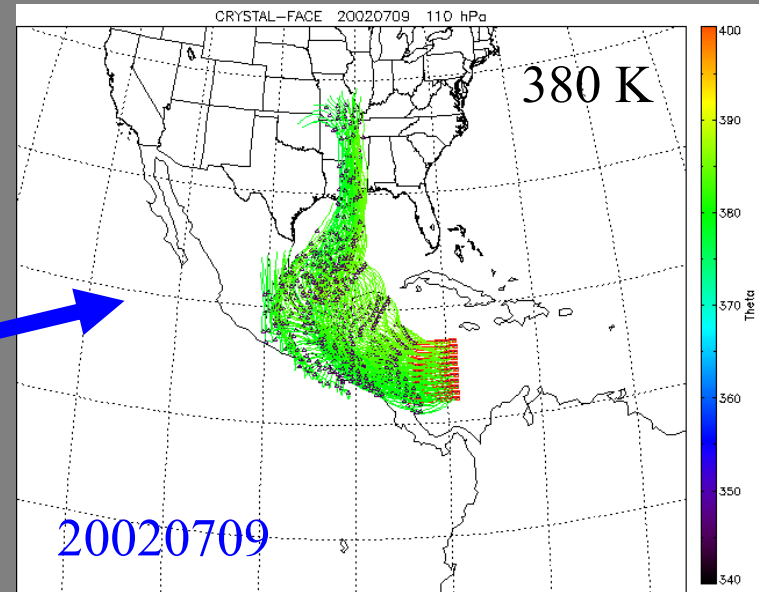
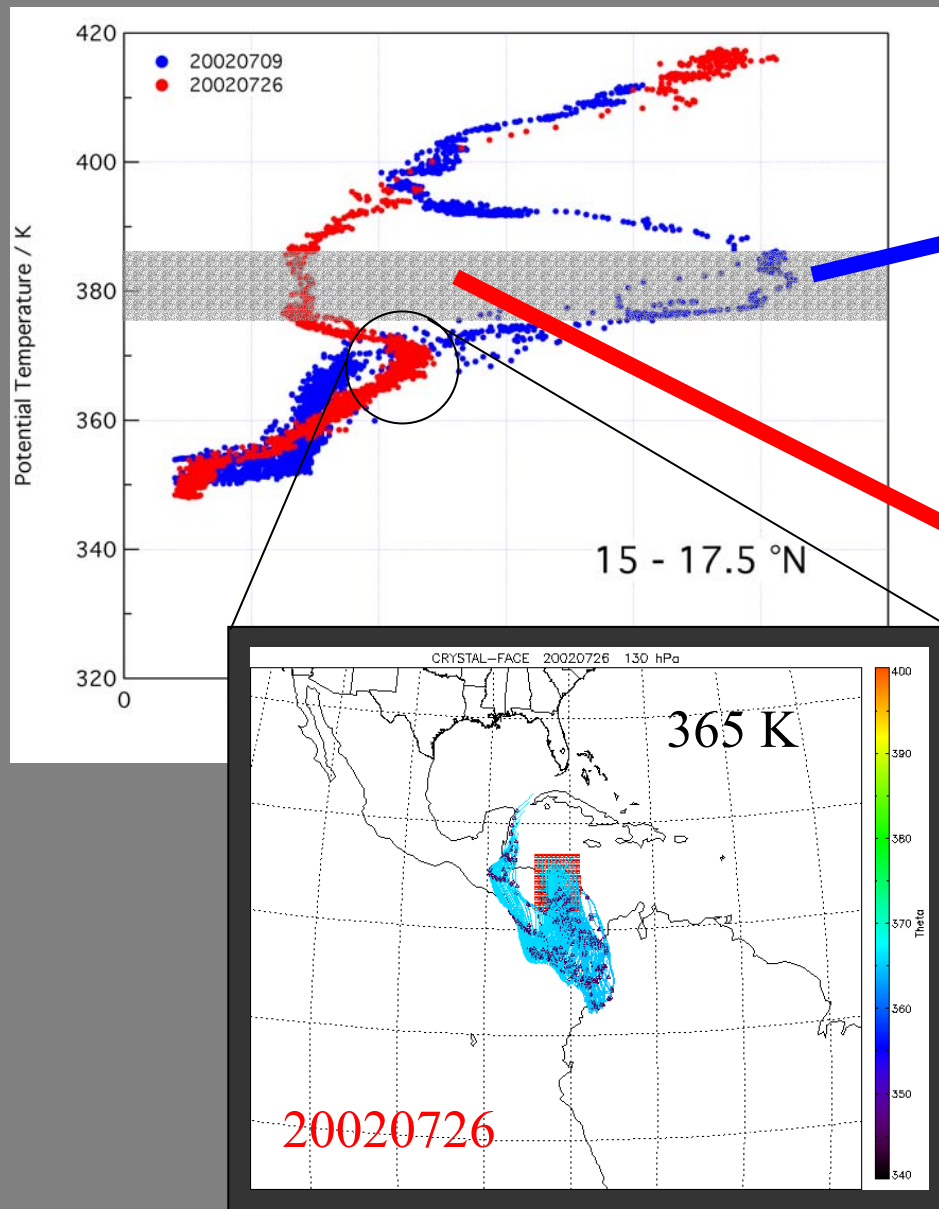
Ozone correlations vs. Potential Temperature

$\text{NO}_y : \text{O}_3$

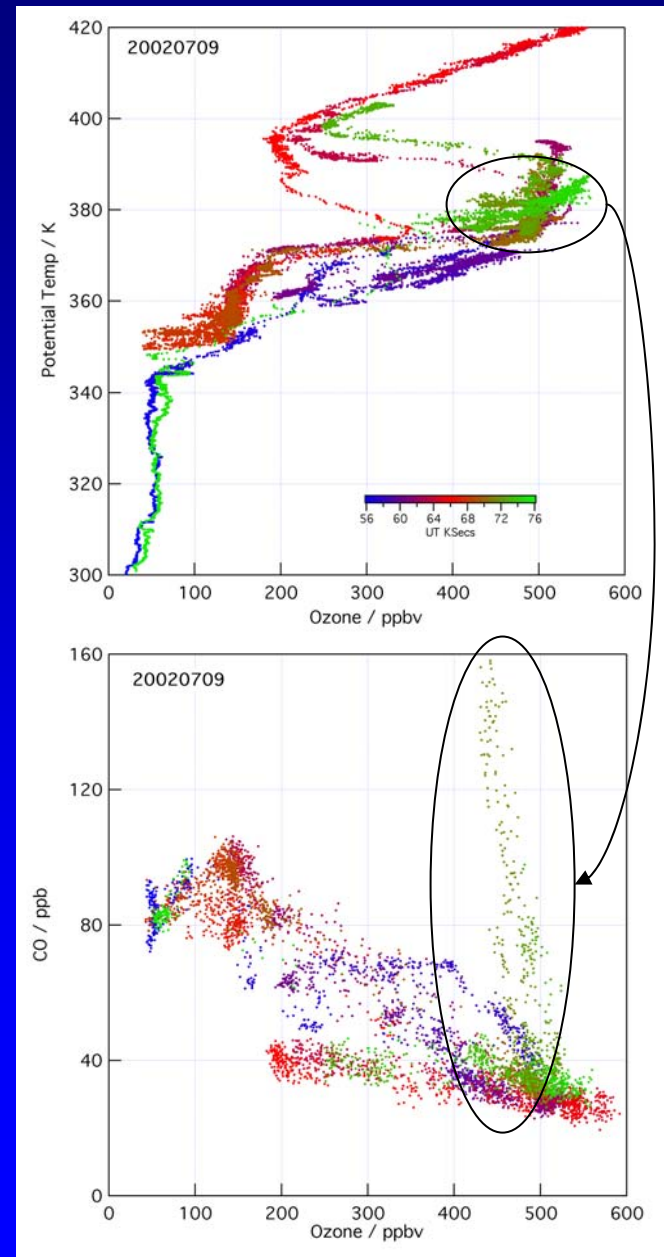
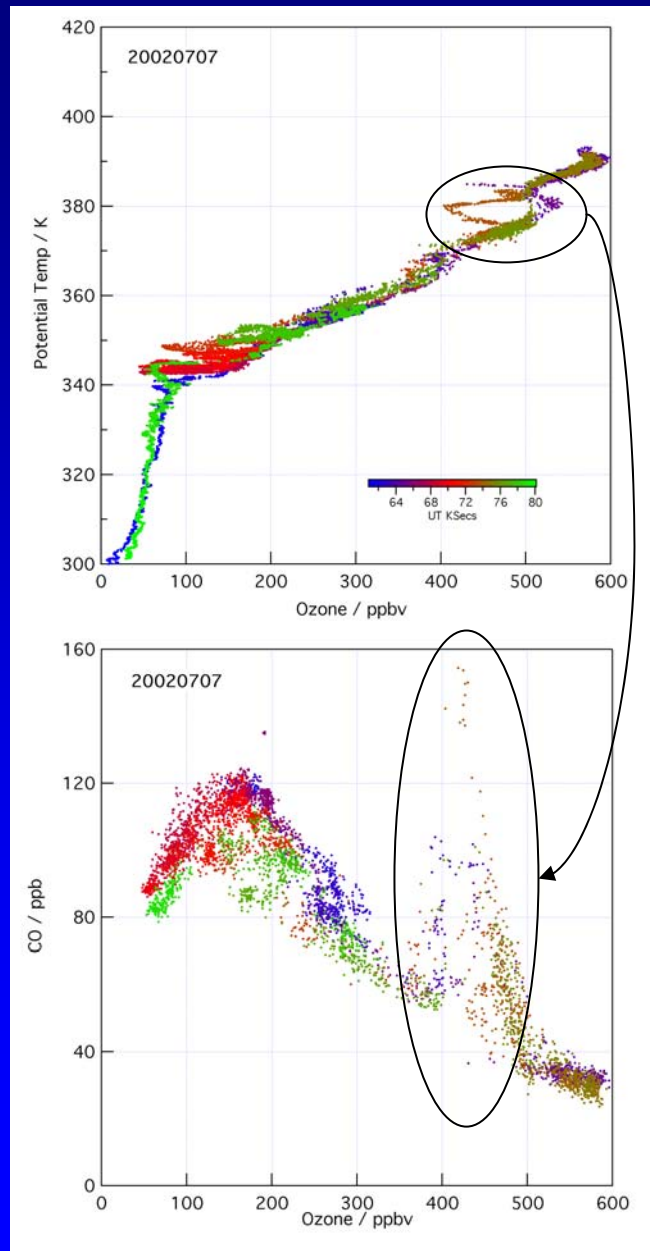


$\text{CO} : \text{O}_3$

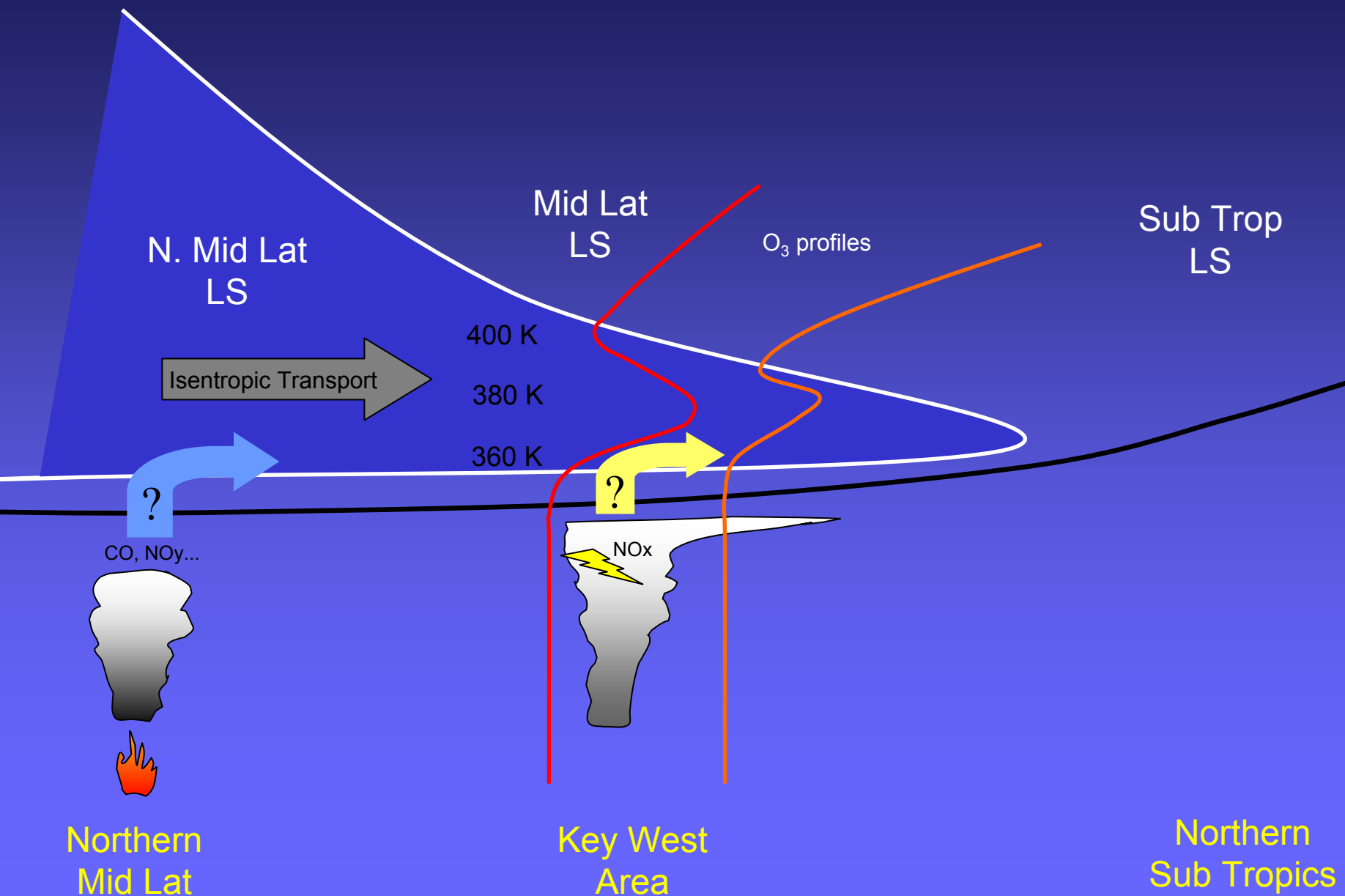




Chemical Ozone Loss from Biomass Plumes



Schematic Overview



Summary

- ✦ “Wedge” of Mid Lat LS air pushing into Sub Tropic LS
 - Lower transition region at “Tropopause”
 - Upper transition region near 400 K
- ✦ Consistent with trajectories over the duration of CRYSTAL-FACE
 - Upper region decreasing over time as flow re-establishes
- ✦ Evidence of biomass burning: Elevated NO_y and CO
 - possible chemical ozone loss associated with plumes
- ✦ Try to quantify mixing and transport